

FULL VERSION OF PENDING CLAIMS

Claims 1-6 (Cancelled)

Claim 7 (Currently Amended): A microelectromechanical system (MEMS) device including a diaphragm comprising a conducting surface, the MEMS device, further comprising:
exactly one layer of C₆₀ fullerene on the conducting surface; and
a single event pipe containing a gas that reacts with carbon byproducts produced after the exactly one layer of C₆₀ fullerene is broken down into carbon byproducts.

Claim 8 (Previously Presented): The MEMS device of claim 7, wherein the conducting surface includes gold.

Claim 9 (Previously Presented): The MEMS device of claim 8, where the C₆₀ fullerene is deposited on the gold surface by sublimation.

Claim 10 (Previously Presented): The MEMS device of claim 8 where the C₆₀ fullerene is deposited on the gold surface by chemisorbtion.

Claim 11 (Cancelled)

Claim 12 (Currently Amended): A mechanically adjustable electron tunneling tip spacing system comprising:

a tunneling tip including a piezoelectric element connected to an end of the tunneling tip;

a MEMS device including a conducting surface opposed the tunneling tip; [[and]]

a single layer of C_{60} fullerene between the tunneling tip and the MEMS device conducting surface, the single layer of ~~C_{60}~~ C_{60} fullerene comprising a spacer layer for establishing a predetermined spacing between the tunneling tip and the MEMS device conducting surface; and

a single event pipe containing a gas that reacts with carbon byproducts,
wherein the gas from the single event pipe reacts with the single layer of C_{60}
fullerene between the tunneling tip and the MEMS device conducting surface after the single
layer of C_{60} fullerene is broken down into carbon byproducts.

Claim 13 (Currently Amended): A system for providing a predetermined spacing between a conducting surface and a tunneling tip to form a tunneling device, comprising:

a substrate including a conducting surface;
a spacer layer having a predetermined thickness and having a first side and a second side, the first side of the spacer layer being disposed to contact the conducting surface;
and

a tunneling tip being disposed to contact the second side of the spacer layer, the tunneling tip being set in position opposed to the conducting surface to form a tunneling device, ~~wherein~~ the distance between the tunneling tip and the conducting surface is being the predetermined thickness;

an energy application member for applying energy to the substrate to cause a
breakdown of the spacer layer between the tunneling tip and the conducting surface to produce a
spacer layer residue; and

a single event pipe containing a first gas for reacting with the spacer layer residue,

wherein when the single event pipe is opened the first gas is released to fill a cavity between the tunneling tip and the conducting surface, a predetermined portion of the first gas reacts with the spacer layer residue in the cavity between the tunneling tip and the conducting surface to produce a second gas.

Claim 14 (Previously Presented): The system of Claim 13,
wherein the spacer layer comprises a monolayer of molecules with the predetermined thickness being the thickness of one molecule.

Claim 15 (Previously Presented): The system of Claim 13,
wherein the predetermined thickness is one nanometer.

Claim 16 (Previously Presented): The system of Claim 14,
wherein the spacer layer comprises C₆₀ fullerene.

Claim 17 (Cancelled)

Claim 18 (Currently Amended): The system of Claim ~~[[17]]~~ 13,
wherein the energy application member applies thermal energy.

Claim 19 (Previously Presented): The system of Claim ~~[[17]]~~ 13,
wherein the energy application member applies electrical energy.

Claim 20 (Cancelled)

Claim 21 (Currently Amended): The system of Claim 13, further comprising:
a prefabricated sacrificial surface away from the tunneling device, the
prefabricated sacrificial surface for adsorbing the first and second gases leaving the region
around the tunneling tip free of adsorbed gases and spacer layer residue.

Claim 22 (Currently Amended): The system of Claim 13,
wherein the first gas reacts with carbon byproducts.

Claim 23 (Currently Amended): The system of Claim 13,
wherein the first gas is selected from the group comprising oxygen and hydrogen.